INNOVATIONS IN CONTACT LENSES THROUGH

ARTIFICIAL INTELLIGENCE

David Kading, OD, FAAO, FCLSA
SEATTLE, WA, USA
drdave@specialtyeye.com
@davekading

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INTRODUCTION

THE AGE OF EXPLOSIVE AI

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AI DEFINITION

simulation of human intelligence in machines programmed to think, learn, and perform tasks autonomously.

3 Examples of AI

Natural Language Processing NLP: understanding, processing, and generating human language in a meaningful way. NLP aims to enable computers to comprehend and work with text or speech data (autocorrect, predictive text, search engine, email spam filters, chatbots)

Machine Learning: encompasses a wide range of techniques and algorithms for making predictions, identifying patterns, and learning from data (Netflix, Amazon Ordering, Siri and Alexa, Social Media, Fraud Detection)

Computer vision is a field of artificial intelligence (AI) that focuses on enabling computers and machines to interpret and understand visual information from the world (Facial Recognition, Traffic Cameras, Social Media Tagging, autonomous vehicles)

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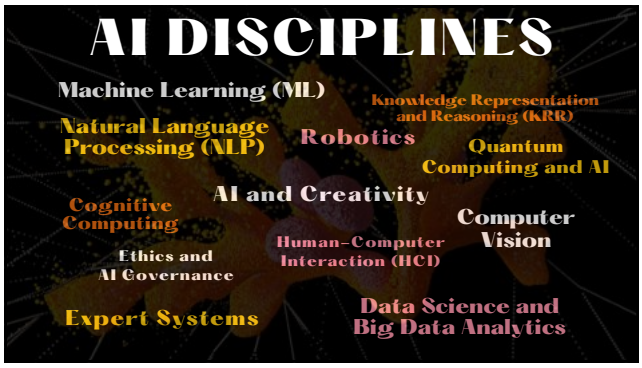
AI DISCIPLINES
Machine Learning (ML)
Knowledge Representation and Reasoning (KRR)
Natural Language Processing (NLP)
Robotics
Quantum Computing and AI
AI and Creativity
Cognitive Computing
Computer Vision
Human–Computer Interaction (HCI)
Ethics and AI Governance
Expert Systems
Data Science and Big Data Analytics

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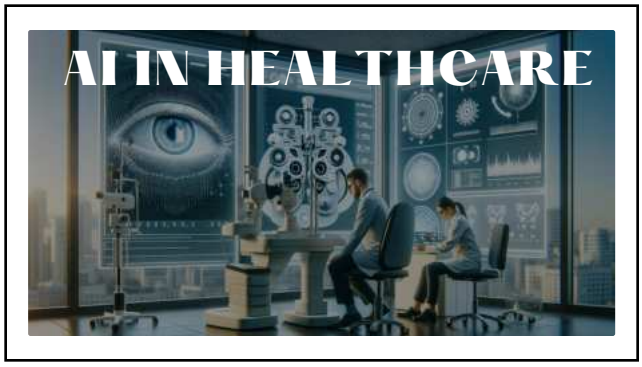
AI IN HEALTHCARE

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AI IN EYECARE

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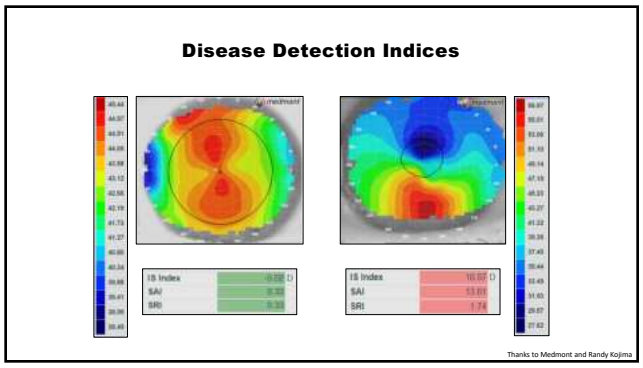
Disease Detection Indices
Thanks to Medmont and Randy Kojima

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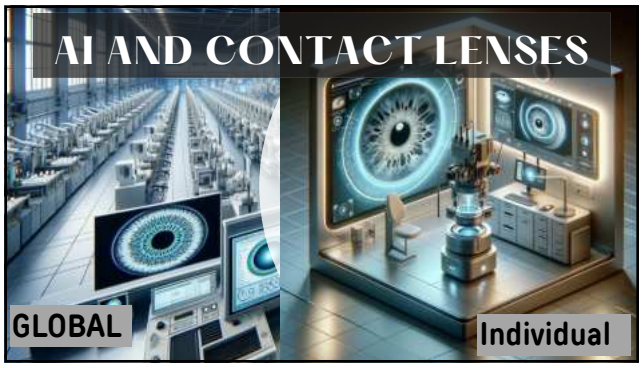
AI AND CONTACT LENSES
GLOBAL
Individual

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COMPONENTS of Smart Lenses

Sensors that can measure various parameters such as glucose levels, intraocular pressure, or even biomarkers indicating certain health conditions.

Microelectronics Miniaturized electronics are embedded within the lenses, enabling data processing and communication with external devices.

Power Source Some smart contact lenses utilize thin, flexible batteries or harvest energy from the wearer's tears to power the embedded electronics.

Wireless Connectivity Smart lenses can wirelessly transmit data to external devices, allowing for real-time monitoring and analysis.

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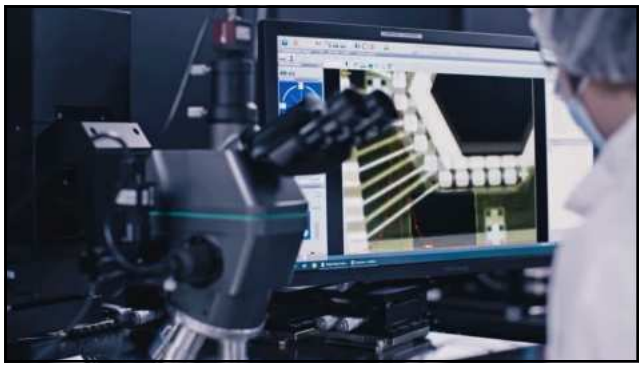

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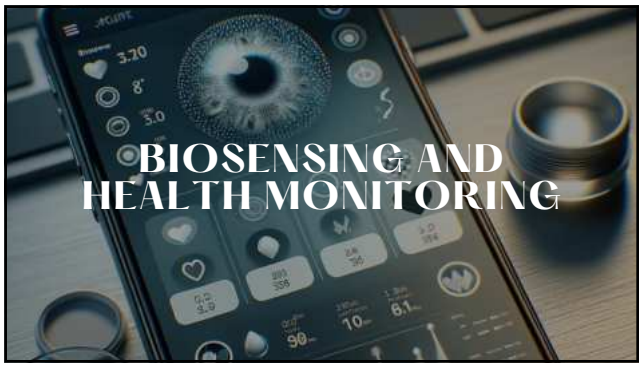
BIOSENSING AND
HEALTH MONITORING

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Soft contact lens
Sensor
Chip & antenna
vox.com

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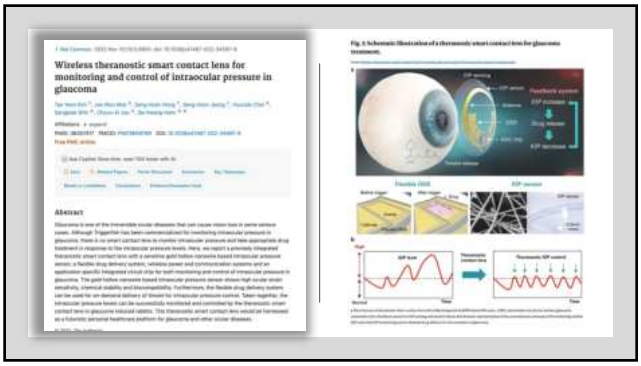
Wireless theranostic smart contact lens for monitoring and control of intraocular pressure in glaucoma
Abstract

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AI & HEALTHCARE ETHICS

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AI Obstacles

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Over the next year look for ADVANCEMENTS with regards to…
Predictive Modeling
Adaptive Prescription Updates
Individualized Treatment Plans
Personalized Modifications
Early Interventions

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DISCUSSION

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